



# BREAKERMATIC® PFA

## Voltage protection module for A/C

## Overview

The BREAKERMATIC PFA is a voltage protection module designed to be incorporated as an original part into 220V single-phase air conditioning equipment of any capacity and operated with a contactor.

It connects via Fast-on terminals, which facilitates assembly within the production line.

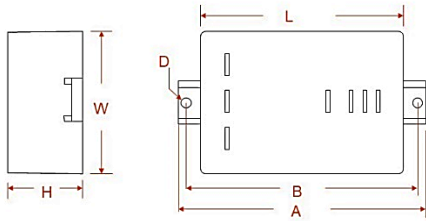
## Operation

1. **Protection against steady-state voltage variations.** The PFA disconnects the output if the steady-state voltage is above the high cut-off voltage or below the low cut-off voltage indicated in the specifications. The response time to a fault is typically 1.5 s. The voltage must remain outside the range longer than the response time for the disconnection to be activated. While the fault is present, the voltage fault indicator will remain illuminated.
2. **Reconnection delay or standby cycle.** When the protector is energized, or at the end of a voltage fault, the protector will initiate a time delay before connecting the output. The duration of the time delay is indicated in the specifications. The standby cycle protects sensitive equipment from short operating cycles, allowing, in the case of A/C equipment, system pressures to equalize before reconnecting. While the output is off, the wait cycle signal will remain on. Once the wait cycle ends, the output is activated, the wait cycle indicator turns off, and the normal voltage indicator turns on.
3. **Blackout, sag, etc. detection.** The protector will disconnect the load if it detects a sudden voltage drop below 50% of the nominal voltage and will initiate a standby cycle. The blackout detector acts instantly when the criteria indicated in the specifications for the minimum blackout duration are met..

## Models

Model	Nominal Voltage	Nominal amperage	Frequency	No. Phases	Cut off voltages	Reconnection delay	Response delay	Language
PFA220-A00EST	220VAC	10A	50/60 Hz	1	Ajustable	4 min	1.5s	Ing. – Esp.

# Specifications

<b>Electrical</b>																							
Nominal Voltage	220	VAC																					
Nominal Frequency	50 - 60	Hz																					
Steady state voltage protection																							
Low cut-off voltage, minimum position	149 +/- 3%	VAC																					
Low cut-off voltage, maximum position	214 +/- 3%	VAC																					
High cut-off voltage, minimum position	214 +/- 3%	VAC																					
High cut-off voltage, maximum position	278 +/- 3%	VAC																					
Reconnection Hysteresis	5 - 10	VAC																					
Response delay	1.5 +/- 20%	s.																					
Reconnection delay cycle	4:00 +/- 20%	Min:seg																					
Blackout detection																							
Minimum blackout duration (0% nominal voltage)	32 -64	ms																					
Minimum brownout duration (50% nominal voltage)	>100	ms																					
<b>Maximum load</b>																							
Load Current (Amperage) (Amperaje máximo de la bobina del contactor)	10	A																					
<b>Mechanicals</b>																							
Dimensions																							
		<table> <tr> <td>Length total A</td><td>99.6</td><td>mm</td></tr> <tr> <td>Dist. huecos B</td><td>91</td><td>mm</td></tr> <tr> <td>Diam. hueco D</td><td>4</td><td>mm</td></tr> <tr> <td>Length L</td><td>82.5</td><td>mm</td></tr> <tr> <td>Width W</td><td>57.5</td><td>mm</td></tr> <tr> <td>Height H</td><td>30.0</td><td>mm</td></tr> <tr> <td>Weight</td><td>75</td><td>gr.</td></tr> </table>	Length total A	99.6	mm	Dist. huecos B	91	mm	Diam. hueco D	4	mm	Length L	82.5	mm	Width W	57.5	mm	Height H	30.0	mm	Weight	75	gr.
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<b>Connections</b>																							
Flat male terminals .250"																							
Recommended female terminal: TE 41450-1 Quick disconnect, receptacle, 14-10 AWG																							
Recommended female terminal housing: TE 1-171706-1 Crimp Terminal Housings, Receptacle, Receptacle, 1 Position, Straight, UL 94V-0, Natural, Nylon, Mating Alignment, FASTON 250																							
<b>Isolation materials</b>																							
Enclosure	ABS																						
Printed circuit board	FR4																						
Flame retardant classification (UL94)																							
Enclosure	V0, 5VA																						
Printed circuit board	V0																						
Isolation resistance (NTC1650:2004 Num 17.1)	>550	Mohms																					
Dielectric strength (NTC1650:2004 num 17.2)	>2	KV																					
<b>Environmental</b>																							
Maximum operating ambient temperature	45	°C																					
Place of use: Indoor use, in a dry and ventilated place	Yes																						
Outdoor use and/or in wet places	No																						
Enclosure ingress protection IP ( IEC 60529)	IP40																						

## Product certificates

NOM NOM-003-SCFI-2014 (NMX-J-515-ANCE)

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**BREAKERMATIC**

Fabricado por:

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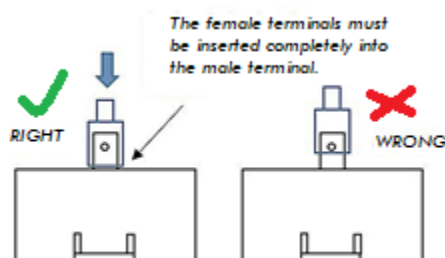
CO13/5465

## Shipping packaging

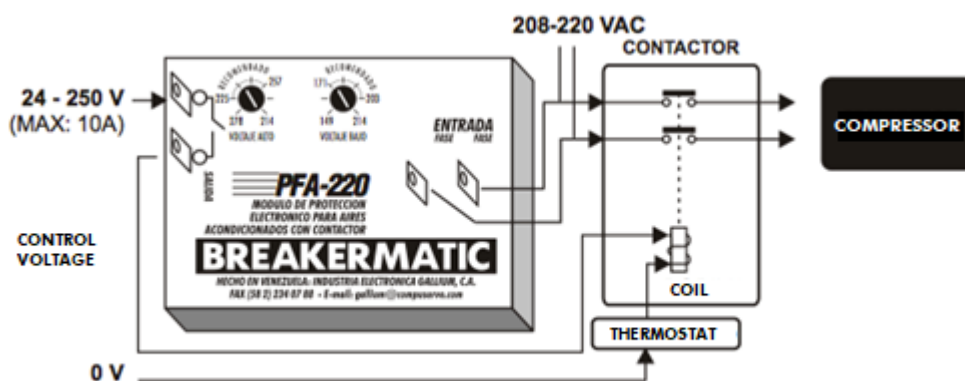
Type	Capacity	Dimensions (Length x Width x Height) (cm)	Weight (Kg)
Carton CC72	72 pcs (12 x 6 pack or 2 x 36 pack)	58 x 33 x 52	12.10
Carton CC60	60 pcs (10 x 6 pack)	51 x 35 x 50	9.90
Carton CC36pack	36 pcs blister	52 x 30 x 25	5.15
Carton CC 6 pack	6 pcs blister	24 x 19 x 16	1.01

## Application notes

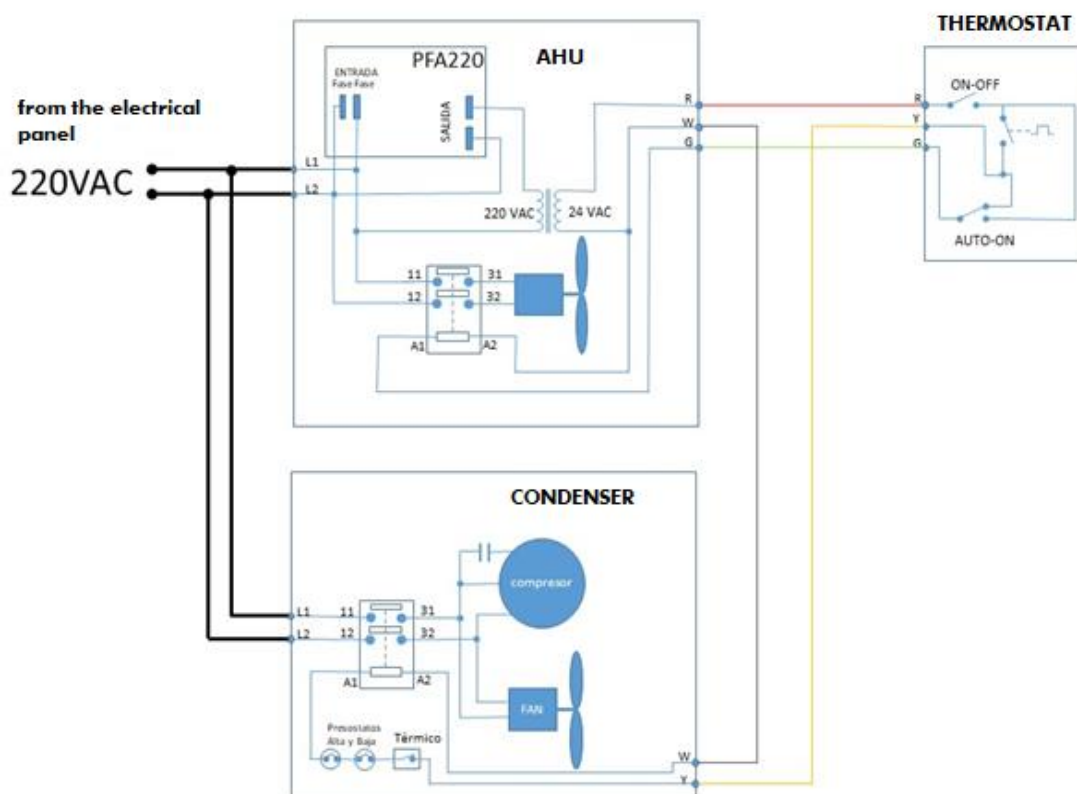
1. Choose an installation location inside the equipment that is not exposed to moisture generated in the equipment or introduced during maintenance.
2. To avoid overheating, the female terminal must be fully inserted into the male terminal.
3. To ensure proper operation of the protector, ensure that the temperature at the terminals does not increase more than 30°C above ambient temperature.
4. This equipment does not directly handle the current from the equipment to be protected. The PFA output is not energized; it is a dry contact; it must be used to control the activation of the contactor of the equipment to be protected.
5. The female terminals must be fully inserted into the male terminals of the protector:



## Connection Diagram



## Typical application



PFA220 installed in the AHU, protecting AHU and CONDENSER